



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/520,210	09/28/2005	R Rogers Yocum	BGI-154US	2701

959 7590 01/04/2008
LAHIVE & COCKFIELD, LLP
ONE POST OFFICE SQUARE
BOSTON, MA 02109-2127

EXAMINER

SAIDHA, TEKCHAND

ART UNIT	PAPER NUMBER
----------	--------------

1652

MAIL DATE	DELIVERY MODE
-----------	---------------

01/04/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/520,210	Applicant(s) YOCUM ET AL.	
	Examiner Tekchand Saidha	Art Unit 1652	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 January 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-49 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) _____ is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 1-49 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Election/Restrictions

1. Restriction is required under 35 U.S.C. 121 and 372.
2. This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.
3. In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

Group I, claim(s) 1 (fully) and 7-15 (all in-part) drawn to a process for enhanced production of pantothenate comprising culturing a microorganism having **(i)** a deregulated methylenetetrahydrofolate (MTF) biosynthetic pathway, under conditions such that pantothenate production is enhanced.

Group II, claim(s) 2 (fully) and 7-15 (all in-part) drawn to a process for enhanced production of pantothenate comprising culturing a microorganism having **(i)** a deregulated methylenetetrahydrofolate (MTF) biosynthetic pathway and **(ii)** a deregulated methylenetetrahydrofolate (MTF) biosynthetic pathway, under conditions such that pantothenate production is enhanced.

Group III, claim(s) 16-27, drawn to a process for enhanced production of pantothenate comprising culturing a microorganism having **(i)** a deregulated methylenetetrahydrofolate (MTF) biosynthetic pathway and **(ii)** a deregulated isoleucine-valine (*ilv*) biosynthetic pathway, and **(iii)** a deregulated methylenetetrahydrofolate (MTF) biosynthetic pathway, under conditions such that pantothenate production is enhanced.

[Claims 28-33, will be examined along with any of the elected groups I, II or III, and to the extent applicable].

Group IV, claims 34-35 (in-part), drawn to product produced by the process of group I.

Group V, claims 34-35 (in-part), drawn to product produced by the process of group II.

Group VI, claims 34-35 (in-part), drawn to product produced by the process of group III.

Group VII, claim(s) 36 (fully) and 38-41 (all in-part) drawn to a recombinant microorganism for enhanced production of pantothenate comprising culturing a microorganism having **(i)** a deregulated methylenetetrahydrofolate (MTF) biosynthetic pathway, and **(ii)** a deregulated methylenetetrahydrofolate (MTF) biosynthetic pathway.

Group VIII, claim(s) 37 (fully) and 38-41 (all in-part) drawn to a recombinant microorganism for enhanced production of pantothenate comprising culturing a microorganism having **(i)** a deregulated methylenetetrahydrofolate (MTF) biosynthetic pathway, **(ii)** a deregulated methylenetetrahydrofolate (MTF) biosynthetic pathway, and **(iii)** a deregulated methylenetetrahydrofolate (MTF) biosynthetic pathway.

Group IX, claims 42-43; A process for producing pantothenate comprising culturing a recombinant microorganism having:

- (a) a deregulated *panB* gene;
- (b) a deregulated *panD* gene; and
- (c) at least one deregulated isoleucine-valine (*ilv*) biosynthetic enzyme-encoding gene; under conditions such that at least 30 g/l pantothenate is produced after 36 hours of culturing the microorganism.

Group X, claim 44, A process for producing pantothenate comprising culturing a recombinant microorganism having:

- (a) a deregulated *panB* gene; and
- (b) a deregulated *panD* gene; under conditions such that at least 50 g/l pantothenate is produced after 36 hours of culturing the microorganism.

Group XI, claims 45, A process for producing pantothenate comprising culturing a recombinant microorganism having:

- (a) a deregulated *panB* gene;
- (b) a deregulated *panD* gene; and
- (c) at least one deregulated MTF biosynthetic pathway; under conditions such that at least 50 g/l pantothenate is produced after 36 hours of culturing the microorganism.

Group XII, claim 46, a process for producing pantothenate comprising culturing a recombinant microorganism having:

- (a) a deregulated *panB* gene;
- (b) a deregulated *panD* gene; and
- (c) a deregulated *glyA* gene; under conditions of excess valine, such that at least 50 g/l pantothenate is produced after 36 hours of culturing the microorganism.

Group XIII, claim 47, a process for producing pantothenate comprising culturing a recombinant microorganism having:

- (a) a deregulated *panB* gene;
- (b) a deregulated *panD* gene; and
- (c) a mutated deleted or disrupted *panD* gene; under conditions of excess valine, such that at least 50 g/l pantothenate is produced after 36 hours of culturing the microorganism.

Group XIV, claim 48, a process for producing pantothenate comprising culturing a recombinant microorganism having:

- (a) a deregulated *panB* gene;
- (b) a deregulated *panD* gene; and
- (c) a deregulated *serA* gene; under conditions of excess valine, such that at least 50 g/l pantothenate is produced after 36 hours of culturing the microorganism.

Group XV, claim 49, a process for producing pantothenate comprising culturing a recombinant microorganism having:

- (a) a deregulated *panB* gene;
- (b) a deregulated *panD* gene; and
- (c) a deregulated *serA* gene; and (d) *glyA* gene, under conditions of excess valine, such that at least 50 g/l pantothenate is produced after 36 hours of culturing the microorganism.

4. The inventions listed as Groups I-XV do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical feature for the following reasons: The technical feature linking Groups I-XV appears to be that they all relate to a process or recombinant organism for producing pantothenate by employing distinct genes or deregulating distinct pathways.

The product of claims 34-35 is pantothenate and is well known in the art. *See*, instant specification, page 2, line 1-4, WO 01/21772. Therefore, Groups I-XV share no special technical feature as defined by PCT Rule 13.2, as it does not define a contribution over the prior art. Furthermore, the products of Groups IV-VI do not share a special common structural or functional feature while, the methods of Groups I-III & VII-XV do not use the same genes or deregulated pathways. Accordingly, Groups I-XV are not so linked by the same or a corresponding special technical feature as to form a single general inventive concept.

Further, in view of 37 CFR 1.475(b), when claims corresponding to different categories of inventions are present then only (3) and additional methods of use are deemed to lack unity. Thus the various groups discussed above show a lack of unity of invention.

5. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

6. The examiner has required restriction between product and process claims. Where applicant elects claims directed to the product, and a product claim is subsequently found allowable, withdrawn process claims that depend from or otherwise include all the limitations of the allowable product claim will be rejoined in accordance with the provisions of MPEP § 821.04. Process claims that depend from or otherwise include all the limitations of the patentable product will be entered as a matter of right if the amendment is presented prior to final rejection or allowance, whichever is earlier. Amendments submitted after final rejection are governed by 37 CFR 1.116; amendments submitted after allowance are governed by 37 CFR 1.312.

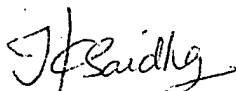
7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tekchand Saidha whose telephone number is (571) 272 0940. The examiner can normally be reached on 8.30 am - 5.00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ponnathapu Achutamurthy can be reached on (571) 272 0928. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Application/Control Number:
10/520,210
Art Unit: 1652

Page 5

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Tekchand Saidha
Primary Examiner, Art Unit 1652
Recombinant Enzymes, 02A65 Remsen Bld.
400 Dulany Street, Alexandria, VA
Telephone: (571) 272-0940

December 31, 2007